

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated May 28, 2003. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 1, 2 and 4-9 are under consideration in this application. Claim 3 is being cancelled without prejudice or disclaimer. Claims 1, 4, 7 and 8 are being amended, as set forth in the above marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim applicants' invention. New claim 9 is being added to recite other embodiments described in the specification.

Additional Amendments

The claims are being amended to correct formal errors and/or to better disclose or describe the features of the present invention as claimed. All the amendments to the claims are supported by the specification. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejections

Claims 1 and 2 were rejected under 35 U.S.C. § 102(b) on the grounds of being anticipated by an article by Honda et al (IEEE Transactions on Magnetics, Vol. 36, No. 5, Sept. 2000; hereinafter "Honda"), claims 1-2 and 7 were rejected under 35 U.S.C. § 102(a) on the grounds of being anticipated by JP2001-283419 (hereinafter "JP'419"), and claims 4-6 were rejected under 35 U.S.C. § 102(b) on the basis of being anticipated by Honda or under 35 U.S.C. 103(a) on the grounds of being obvious over Honda.

Under 35 U.S.C. § 103(a), claim 3 was rejected as being unpatenable over Honda in view of US Pat. No. 6,562,489 to Abarra et al (hereinafter "Abarra"), and claims 7 and 8 were rejected as being unpatenable over Honda in view of US Pat. No. 6,001,447 to Tanahashi et al (hereinafter "Tanahashi"). These rejections have been carefully considered, but are most respectfully traversed.

Applicant contend that JP'419 was published on October 12, 2001 after (rather than before) the priority date of the invention of December 28, 2000. A copy of the certified English translation of the priority document JP 2000-401913 is enclosed to prove that the invention as claimed was fully described and supported by the priority document. Accordingly, JP'419 does not constitute a 102(a) reference against the invention.

The perpendicular magnetic recording medium according to the invention (e.g., Fig. 1), comprises: a substrate 11; a soft magnetic underlayer 13 formed on said substrate 11; a nonmagnetic intermediate layer 14 formed on said soft magnetic underlayer 13; and a perpendicular recording layer 15 formed on said intermediate layer 14. A nonmagnetic amorphous or nanocrystalline pre-coating layer 12 is provided between said substrate 11 and said soft magnetic underlayer 13. (1) The soft magnetic underlayer 13 contains Fe, Ta and C, and a concentration of said Ta ranges from 8 at % to 15 at % (Claim 1) , or (2) the in-plane coercivity Hc (298K) of said soft magnetic underlayer 13 is 1 Oe or less and in-plane coercivity Hc (173K) of said soft magnetic underlayer 13 is 3 Oe or more, the in-plane coercivity Hc (298K) being measured while applying magnetic field along a head running direction at a temperature of 298 K, and the in-plane coercivity Hc (173K) being measured while applying magnetic field along the head running direction at a temperature of 173 K (Claim 4).

The main feature of the invention is that a perpendicular magnetic recording medium has a laminated structure comprising: a substrate 11; an amorphous or nanocrystalline pre-coating layer 12; a soft magnetic underlayer 13; a nonmagnetic intermediate layer 14; and a perpendicular recording layer 15. The soft magnetic underlayer 13 (1) contains Fe, Ta and C, and has a Ta concentration of from 8-15 at % (claim 1), or (2) has in-plane coercivity Hc (298K) of 1 Oe or less and in-plane coercivity He (173K) of 3 Oe or more.

According to the present invention, the soft magnetic underlayer 13 is formed on the amorphous or nanocrystalline pre-coating layer 12 to suppress the nonuniformity of the soft magnetic underlayer 13 attributable to a type of substrate material or temperature distribution in

annealing. Therefore, the invention can provide a perpendicular magnetic recording medium which sufficiently reduces medium noises attributable to the soft magnetic underlayer 13 (see page 4, lines 4 to 8).

Applicants respectfully contend that neither Honda nor any other cited prior art reference teaches or suggests such a laminated structure of a perpendicular magnetic recording medium.

In contrast, the soft magnetic underlayer containing Fe, Ta and C in Honda is directly formed on a glass substrate, rather than having an amorphous or nanocrystalline pre-coating layer 12 formed therebetween.

The amorphous NiP layer 62 in Abarra (Fig. 13) is relied upon by the examiner as being formed between a substrate 51 and an underlayer 53. Contrary to the Examiner's allegation that Abarra's underlayer 53 corresponds the soft magnetic underlayer 13 of the invention, Abarra's underlayer 53 corresponds to the intermediate layer 14 of the present invention since the underlayer 53 is nonmagnetic (e.g. Al₅CuZr₂, etc. Col.8, line 67) rather than magnetic as the soft magnetic underlayer 13 of the invention, although the NiP layer 62 promotes the formation of small grains of the underlayer 53. Further, in Fig. 13, the NiP layer 62 is formed **on/above** (rather than **below**) the soft magnetic layer 61 such that it is NOT formed between said substrate 51 and the soft magnetic layer 61.

Applicants contend that neither Honda nor Abarra teaches or discloses each and every feature of the present invention as disclosed in at least independent claims 1 and 4. As such, the present invention as now claimed is distinguishable and thereby allowable over the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

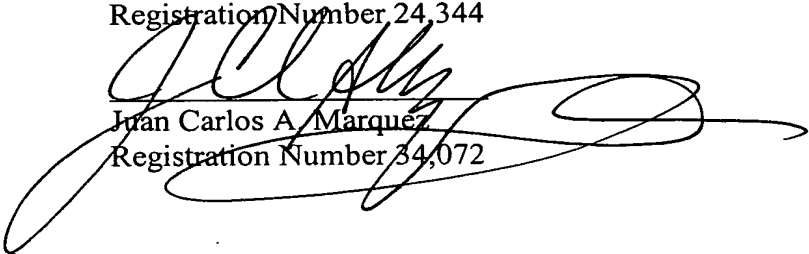
In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of

the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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